

AN OVERVIEW OF ADDICTION, TREATMENT AND PREGNANCY

Mark Publicker, MD FASAM

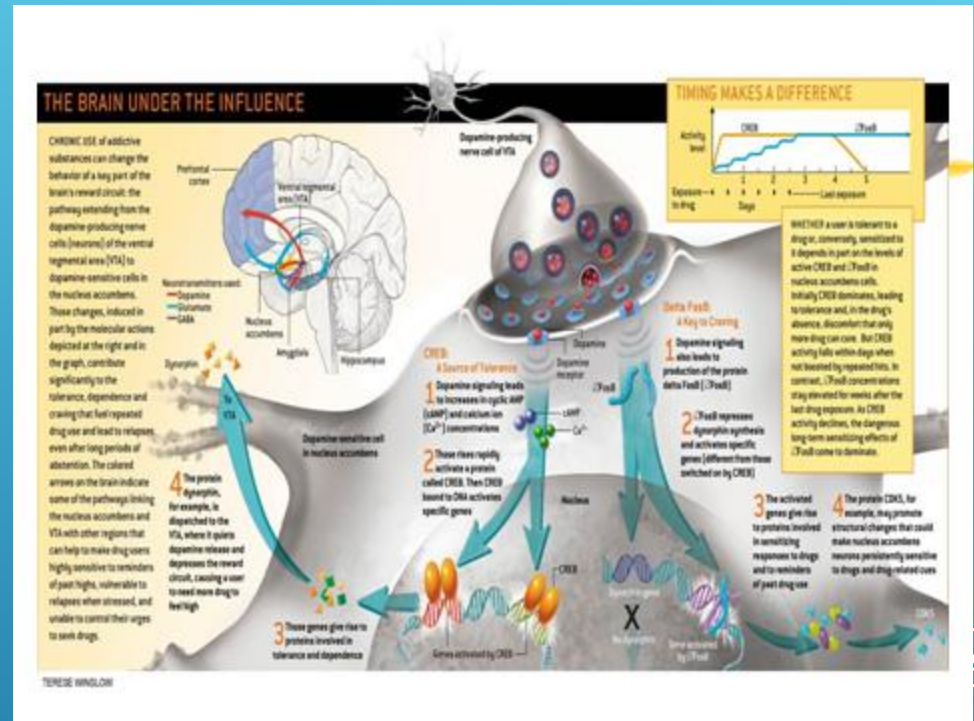
Diplomate. American Board of Addiction Medicine

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For additional online resources on preterm birth, please visit:

1. **PrematurityPrevention.org** Online source of information on prematurity. This site is primarily for professional use and includes current information on prevention and risk reduction initiatives, research, advocacy, professional education, global initiatives, and resources to use with patients.
2. **Elimination of Non-medically Indicated Elective Deliveries Before 39 Weeks Gestational Age.** Outlines successful initiatives and sample implementation plan to reduce elective deliveries before 39 weeks at hospital, health system and statewide levels. Free download: prematurityprevention.org or purchase: marchofdimes.com/catalog
3. **Toward Improving the Outcome of Pregnancy III.** Explores the elements that are essential to improving quality, safety and performance across the continuum of perinatal care. prematurityprevention.org
4. **Preterm Labor Assessment Toolkit** - Provides standardized protocols for assessing patients in preterm labor. prematurityprevention.org
5. **Marchofdimes.com/nursing** - Visit the March of Dimes nursing website for free educational content, CNE activities, graduate nursing scholarships and patient education resources.

- ▶ Increases neuronal dendritic branching and spine density in the NAc and prefrontal cortex—an adaptation that is thought to participate in the enhanced incentive motivational value
- ▶ Compulsive behavior (OFC) and disinhibition (25) (cingulate gyrus).
- ▶ Nigrostriatal circuit (including the dorsal striatum)



YOU DON'T NEED TO REMEMBER...

- ▶ **Addiction is a primary, chronic disease of brain reward, motivation, memory and related circuitry**
- ▶ **Dysfunction in these circuits leads to characteristic biological, psychological, social and spiritual manifestations.**
- ▶ **This is reflected in the individual pursuing reward and/or relief by substance use and other behaviors.**

ASAM DEFINITION

- ▶ **Addiction is characterized by impairment in behavioral control, craving, inability to consistently abstain, and diminished recognition of significant problems with one's behaviors and interpersonal relationships.**

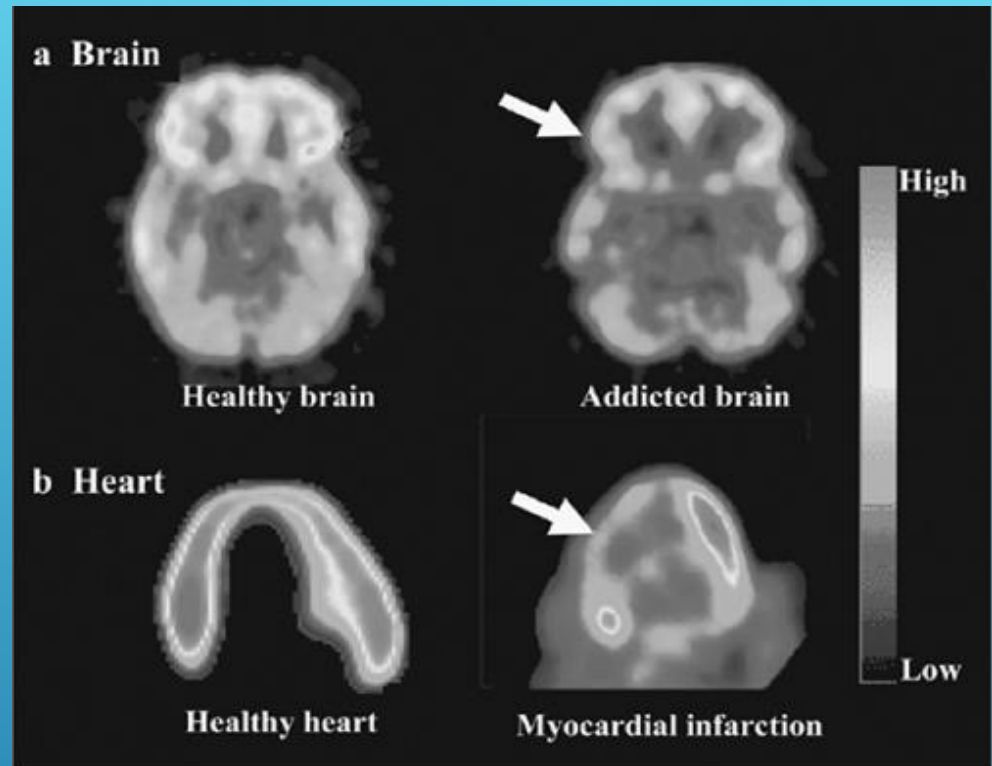
ASAM DEFINITION

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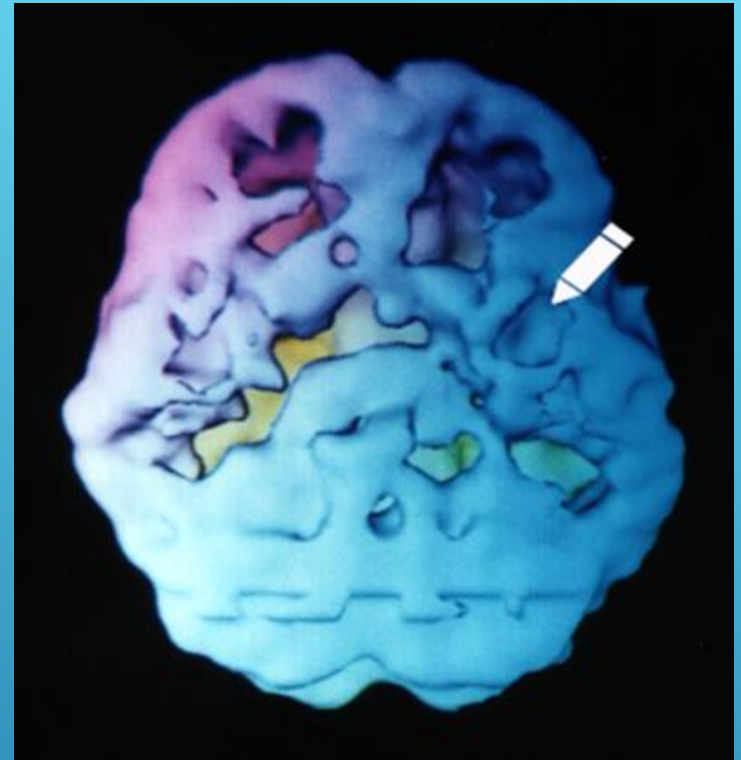
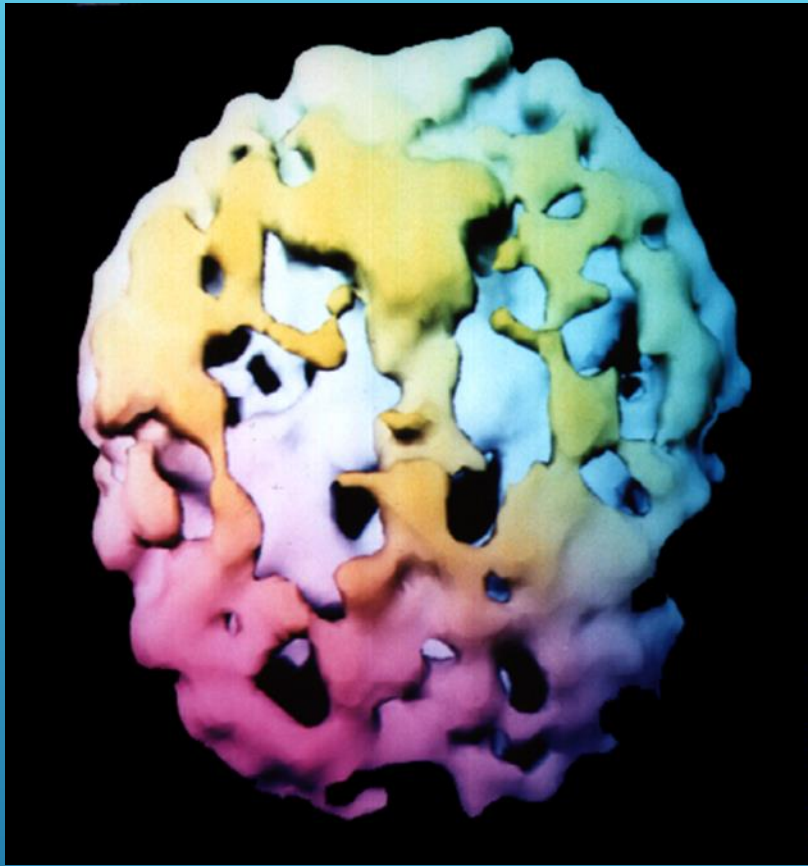
- ▶ Like other chronic diseases, addiction involves cycles of relapse and remission. Without treatment or engagement in recovery activities, addiction is progressive and can result in disability or premature death

ASAM DEFINITION

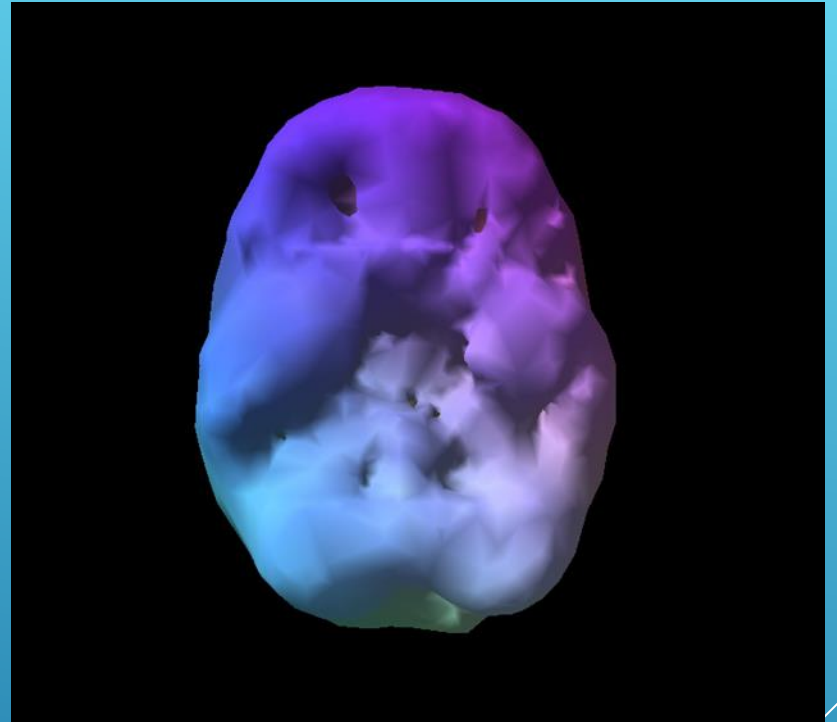
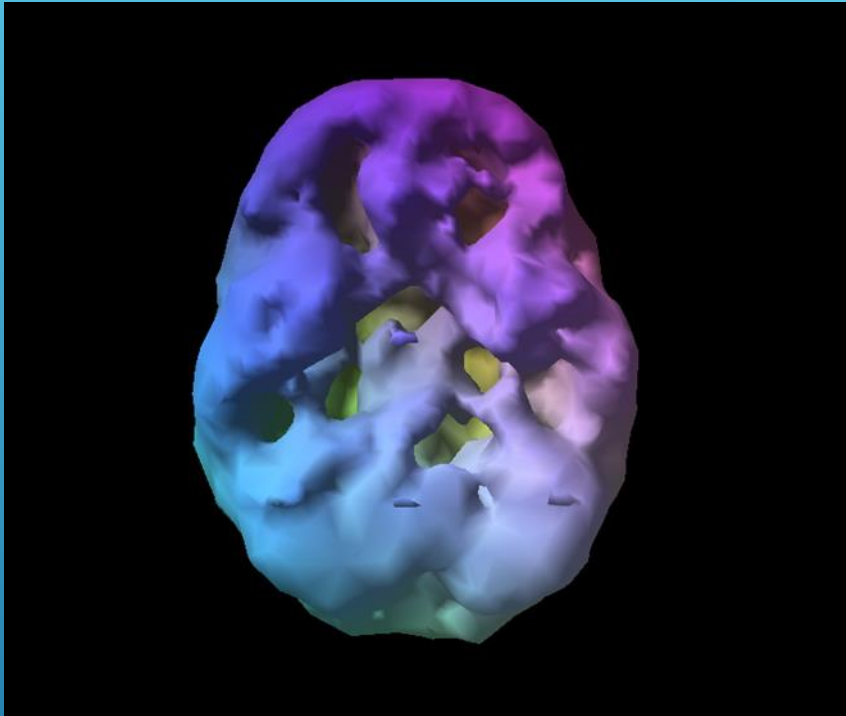
- Imaging studies consistently show specific abnormalities in the brain function of addicted individuals



ADDICTION AS A DISEASE OF THE BRAIN



HEROIN AND CANNABIS SPECT
SCANS



ALCOHOL SPECT SCAN

- ▶ **Powerful Compulsion to use a substance with a progressively diminished capacity to resist it despite escalating personal harm**
- ▶ **The use is at the expense of natural rewards**
- ▶ **This leads to the development of a negative affect state**

DEFINITION

- ▶ Repeated drug use leads to long-lasting changes in the brain that undermine voluntary control
- ▶ Underlying disruption to brain regions that are important for the normal processes of motivation, reward, and inhibitory control in addicted individuals

ADDICTION: VOLKOW

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- ▶ **Increases in dopamine are not directly related to reward per se, as was previously believed, but rather to the prediction of reward and for salience**
- ▶ **Salience refers to stimuli or environmental changes that are arousing or that elicit an attentional–behavioral switch**

VOLKOW: DOPAMINE AND SALIENCE

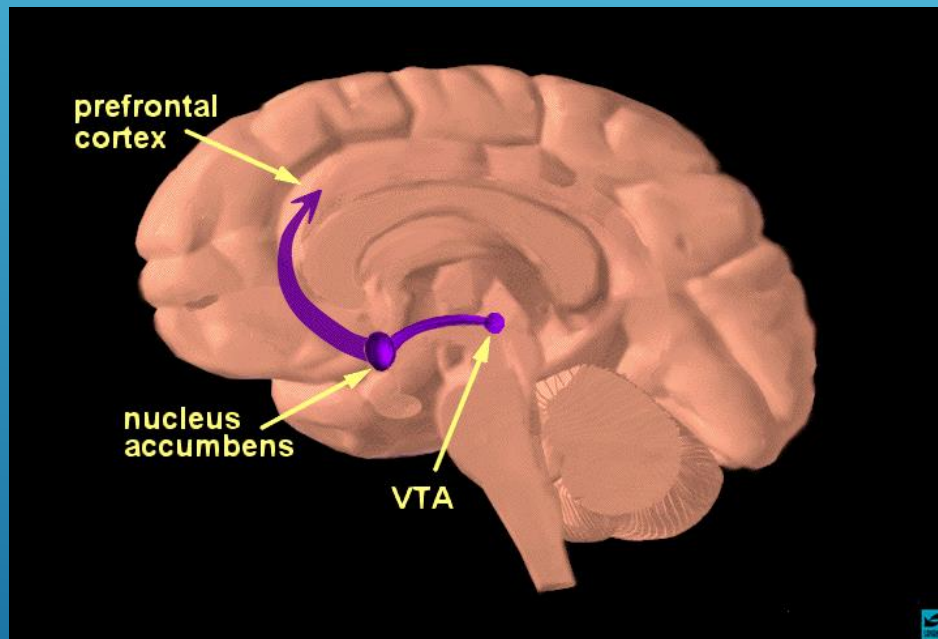
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- ▶ “Addiction represents a pathological usurpation of the neural mechanisms of learning and memory that under normal circumstances serve to shape survival behaviors related to the pursuit of rewards and the cues that predict them.”

- ▶ Steven Hyman

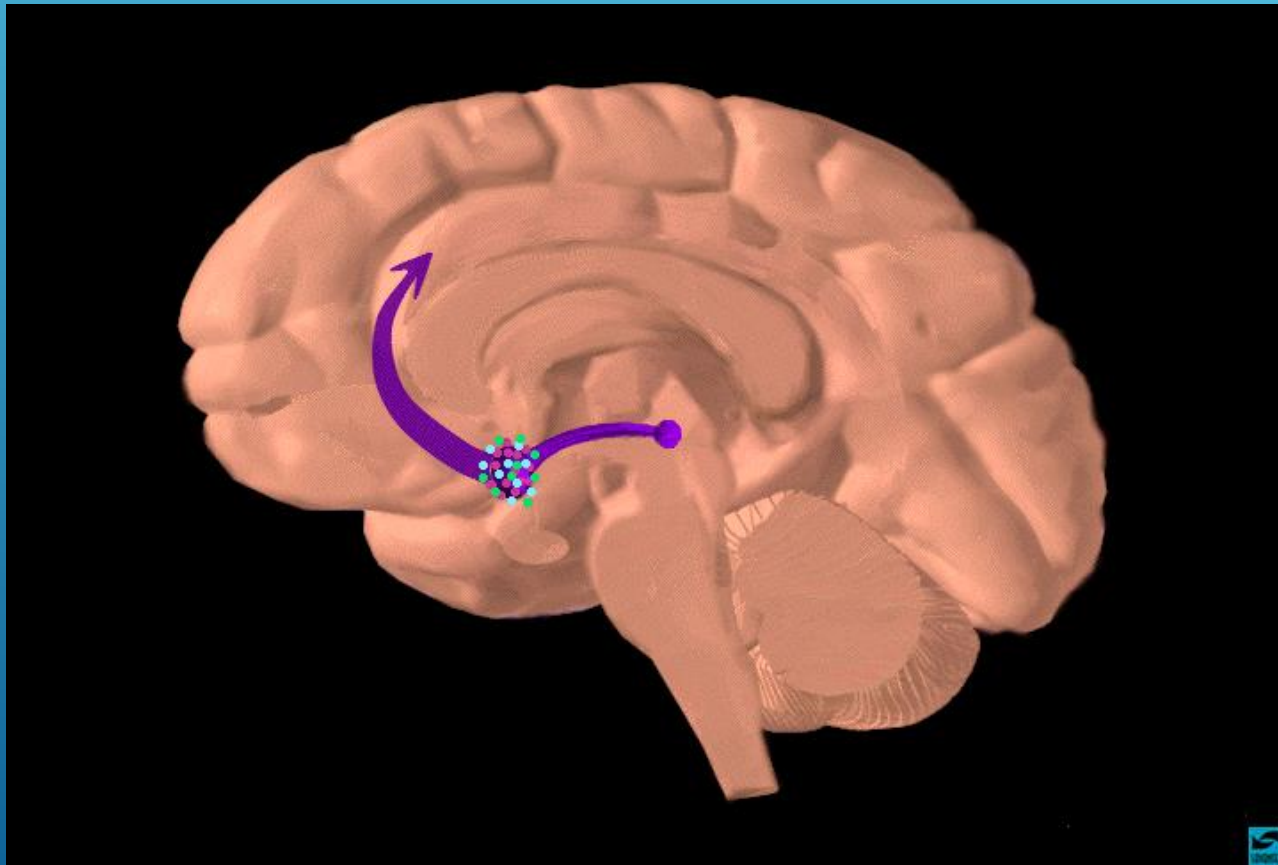
DISEASE OF MALADAPTIVE LEARNING

NEURAL CIRCUITRY OF REWARD

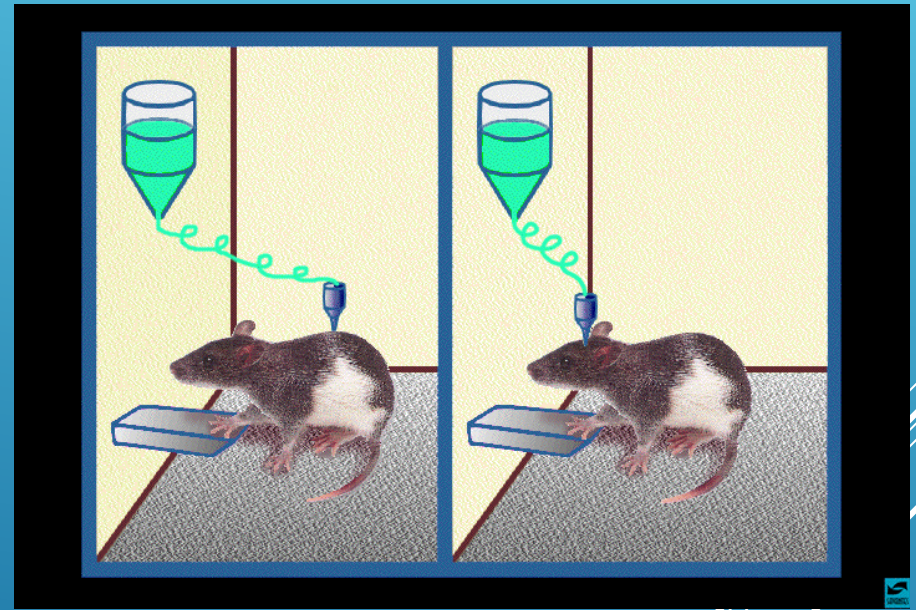
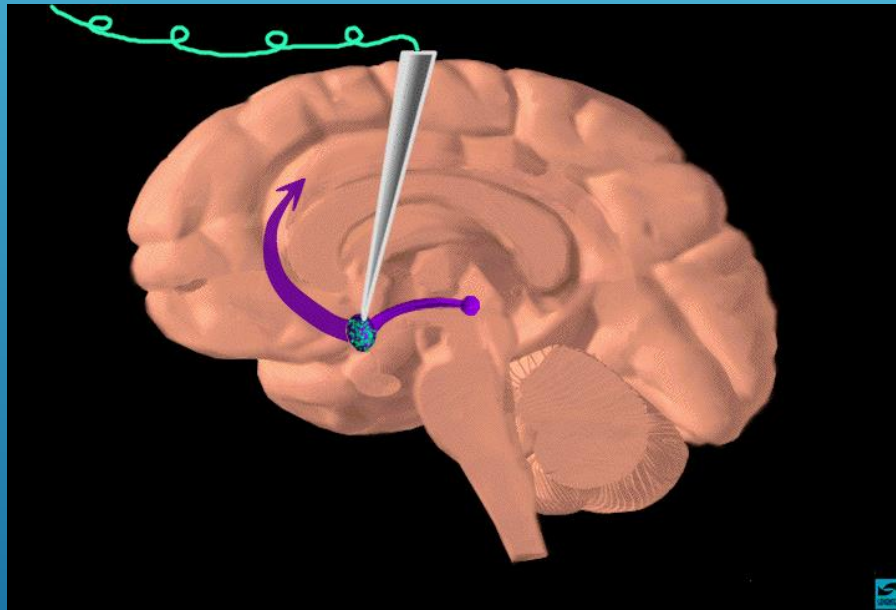


- ▶ Present in all animals
- ▶ Produces pleasure for behaviors needed for survival:
- ▶ Eating
- ▶ Drinking
- ▶ Sex
- ▶ Nurturing

ALL DRUGS OF ABUSE BIND TO THE NEURAL CIRCUITRY OF REWARD



SELF-STIMULATION STUDIES



- ▶ “Addiction is a cycle of spiraling dysregulation of brain reward systems that progressively increases, resulting in compulsive drug use and a loss of control over drug taking”
- ▶ Counteradaptive hedonic dysregulation

GEORGE KOOB

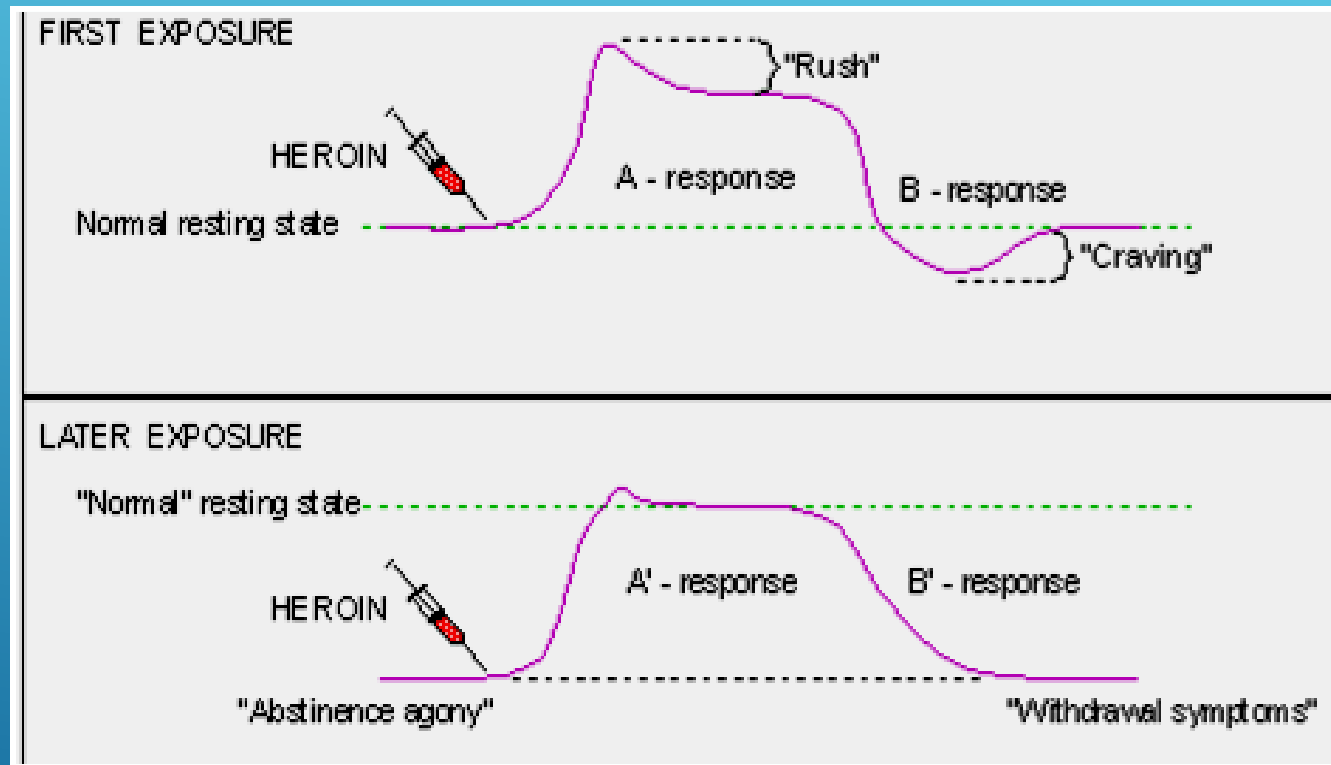
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- ▶ **Drugs change the brain's pleasure and reward balance**
- ▶ **The brain has powerful mechanisms to oppose this change,**
- ▶ **The counteradaptive action overshoots**
- ▶ **Repeated cycles of use lead to long-lasting neuroplastic changes**

NEUROADAPTATION

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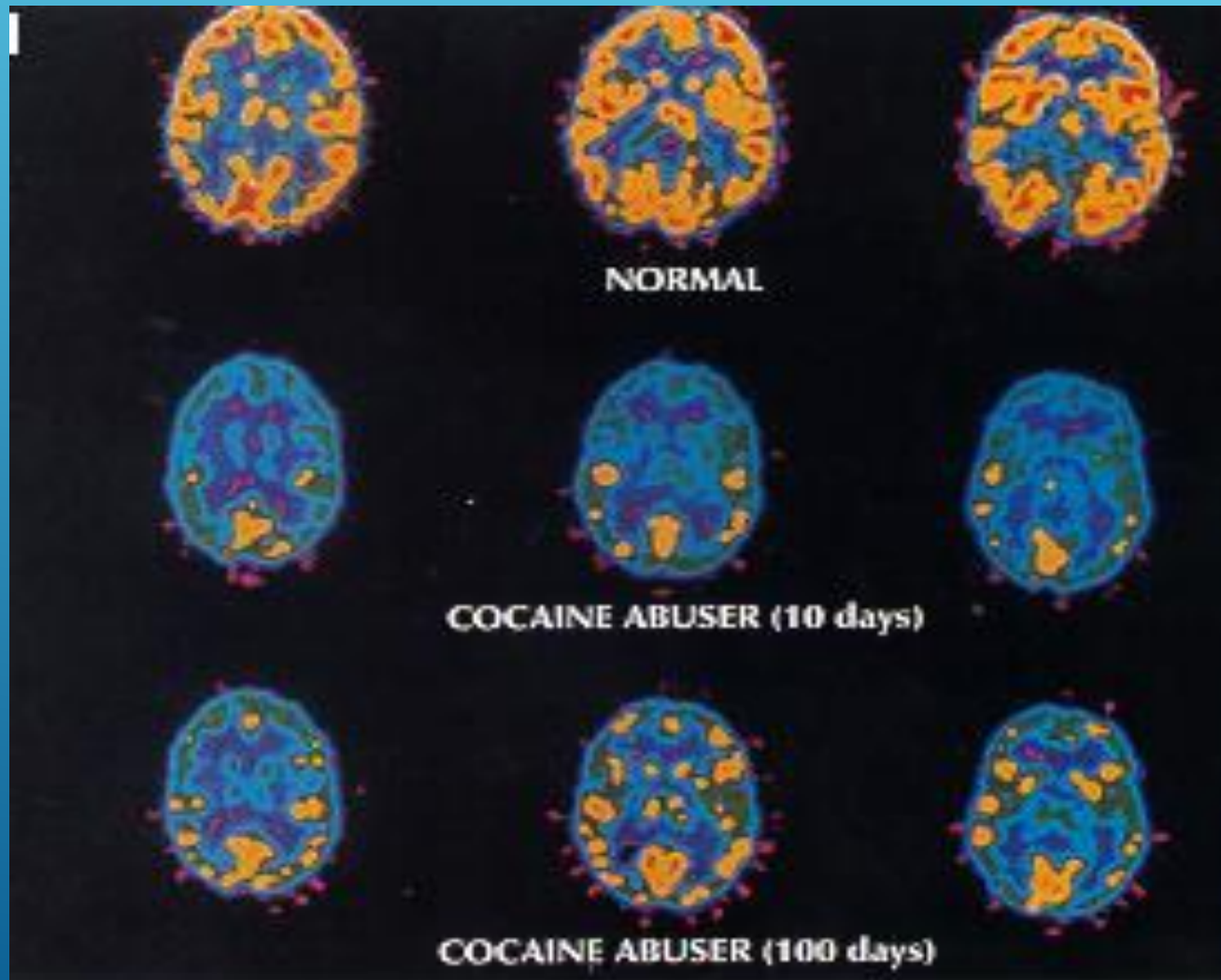
OPPONENT PROCESS - HEROIN



- ▶ Change to a new, vulnerable state
- ▶ Activation of stress circuitry
- ▶ Deficit state: inhibition of brain reward system
- ▶ Increased reward threshold
- ▶ Altered hedonic tone
- ▶ Drugs create the stress that require that they be used to create the very problem that they have created

ALLOSTASIS

COCAINE PET SCAN



- ▶ Foot shock, foot shock, foot shock

STRESS REINSTATEMENT PARADIGM



- ▶ Addiction is a chronic, progressive brain disease
- ▶ In the course of repeated drug use long-lasting changes occur in the circuitry involved in memory, learning, motivation and reward as well as inhibitory control
- ▶ Craving and relapse can be triggered by salient cues and stress

SO, WHERE ARE WE?

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- ▶ **Buprenorphine and methadone**
- ▶ **Block withdrawal**
- ▶ **Block craving**
- ▶ **Block the effect of opiates**
- ▶ **Unassailable evidence of their cost and clinical effectiveness (see handouts)**

TREATMENT

- ▶ **Stigma**
- ▶ **Poor self-care common**
- ▶ **Common untreated co-occurring psychiatric illness**
- ▶ **Emotional and economic dependence on exploitative partners**
- ▶ **Ignorance of treatment and support options**

**TREATMENT BARRIERS IN
PREGNANCY**

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- ▶ Lack of insurance
- ▶ Limited access to appropriate treatment
- ▶ Ignorance of treatment options
- ▶ Lack of transportation
- ▶ Treatment Barriers
- ▶ Fear, shame, and guilt about use
- ▶ Will she lose other children if in treatment?

TREATMENT BARRIERS

- ▶ Does she have family support?
- ▶ Attitudes of medical providers
- ▶ Lack of comprehensive clinical care services for all the problems of pregnancy AND addiction
- ▶ Can she get to treatment? Transportation problems?
- ▶ Lack of childcare while in treatment Fear, shame, and guilt about use
- ▶ Basic needs must be met for her to engage in treatment

TREATMENT BARRIERS

- ▶ Have histories of neglect and physical, emotional and sexual abuse
- ▶ Are impoverished
- ▶ Are often homeless
- ▶ Are often sexually exploited

OUR PATIENTS

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- ▶ **Maintenance medications (NOT substitutes)**
 - ▶ **Buprenorphine and methadone**
 - ▶ **From WHO to the IOM to ACOG and ASAM all support the use of these medications**

TREATMENT IN PREGNANCY

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- ▶ These stabilize the uterine environment by blocking the cycles of intoxication and withdrawal
- ▶ Without medication babies who survive are often preterm and very small for gestational weight
- ▶ Taking these medications are consistent with recovery

TREATMENT IN PREGNANCY

- ▶ Nothing is more rewarding than providing compassionate care to a pregnant woman and then be able to see the baby as she grows
- ▶ All of our moms say that without accessible treatment they would have continued to use
- ▶ ‘Whoever saves one life saves the entire world.’
 - ▶ Oscar Schindler

AND FINALLY...

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